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Hearing loss and dementia.

Information for your patients.

Greater emphasis is being placed on hearing health in 2014.

As a physician, you may be routinely asking patients whether they have had their hearing checked. Beyond referring patients for hearing tests and encouraging treatment of hearing loss, it is important to inform them of the risks they run if they ignore hearing loss – dangers that include certain life-threatening co-morbidities.

"Seniors with hearing loss are significantly more likely to develop dementia over time than those who retain their hearing...Our findings emphasize just how important it is for physicians to discuss hearing with their patients and to be proactive in addressing any hearing declines over time."¹

The link between untreated hearing loss and development of dementia and Alzheimer's disease.

Multiple studies indicate hearing loss can be linked to the onset of dementia and Alzheimer's disease. Leaving hearing loss untreated could pose a serious risk that has not been widely shared with the hearing-impaired population. Providing this information will encourage patients and their loved ones to make more informed and timely decisions about their hearing care.

Frank R. Lin, MD, Ph.D conducted a study commonly cited by medical professionals on the topic of hearing loss and cognitive decline. The study observed 1,984 adults with a mean age of 77.4 years over the course of six years, tracking the progression of their hearing loss in relation to their cognitive function. Dr. Lin concluded that while further research was needed to identify the mechanics of how and why hearing loss and cognitive decline are related, there is little doubt that hearing loss is a factor in loss of mental acuity in older adults. The study also indicated that the more severe the hearing loss, the greater the likelihood of developing a cognitive disorder, and the steeper the decline in mental function. However, even subjects with mild hearing loss were found more likely to experience cognitive failures.

"Declines in hearing abilities may accelerate gray matter atrophy and increase the listening effort necessary to comprehend speech...Hearing aids may not only improve hearing but preserve the brain."²

At the time the initial study results were released, Dr. Lin and other experts put forth several theories as to why hearing loss may lead to dementia and Alzheimer's disease:

- The effort it takes those with hearing loss to hear and comprehend creates a regular strain that interferes with normal cognition
- Hearing impaired people tend to withdraw socially and the lack of regular interaction leads to mental stagnation
- A combination of all these factors contributes to cognitive decline



In January 2014, Dr. Lin and his team released new results regarding changes in the brains of adults with normal hearing to those of adults with hearing loss. After undergoing magnetic resonance imagining (MRI) exams every year for ten years, 51 of the 126 participants examined whom had at least a 25-decibel (dB) hearing loss from the start displayed accelerated rates of gray matter shrinkage when compared to the 75 participants with normal hearing. Those with hearing impairments lost more than an additional cubic centimeter of brain matter annually and experienced greater shrinkage of tissue in the structures responsible for processing sound and speech. The atrophy affected the middle and inferior temporal gyri, which play key roles in memory and sensory integration. Similar damage to these regions can be seen in patients with Alzheimer's disease.

"Untreated hearing loss is linked to reduced earnings, increased workplace absenteeism, and lower workplace productivity, as well as depression, anxiety, and cognitive decline."³

Early diagnosis and treatment of hearing loss slows the progression of dementia and Alzheimer's disease. As evidence continues to mount that hearing loss is a contributing factor in the development of dementia and Alzheimer's disease, it is imperative to inform patients of the profound consequences of ignoring their hearing loss. People with hearing loss on average wait seven years from when they are diagnosed to seek treatment, even though the sooner hearing loss is detected and treatment begins, the more hearing ability can be preserved. Considering early diagnosis and medical intervention also slows the progression of dementia and Alzheimer's disease, it is more important than ever for physicians to encourage patients to get their hearing loss treated sooner rather than later.

Treatment with hearing aids not only help improve a patient's hearing – they may be the key to preventing brain atrophy and cognitive dysfunction.

"The costs of health care, long-term care and hospice (for dementia and Alzheimer's patients in the US) combined equal \$183 billion per year, and are expected to increase to 1.1 trillion per year by 2050."⁴

¹ Johns Hopkins Medicine. Hearing Loss Accelerates Brain Function Decline in Older Adults. 2013 (http://www.hopkinsmedicine.org/news/media/releases/hearing_loss_accelerates_brain_function_decline_in_older_adults)

² University of Pennsylvania – Perelman School of Medicine, Jonathan Peele, PhD. 2011 (www.sciencedaily.com/releases/2011/08/110831115946.htm)

³ Better Hearing Institute. The Impact of Untreated Hearing Loss on Household Income. Sergei Kochkin, Ph.D. 2005 (http://www.hearing.org/uploadedFiles/Content/impact_of_untreated_hearing_loss_on_income.pdf)

⁴ Alzheimer's Association. 2011 Alzheimer's Disease Facts and Figures (http://www.alz.org/downloads/Facts_Figures_2011.pdf)

⁵ JAMA Internal Medicine. Frank R. Lin, MD, PHD. Hearing Loss and Cognitive Decline in Older Adults (<http://archinte.jamanetwork.com/article.aspx?articleid=1558452#qundefined>)

⁶ The Hearing Review. Hearing Loss Linked to Accelerated Brain Tissue Loss (<http://www.hearingreview.com/news/22228-hearing-loss-linked-to-accelerated-brain-tissue-loss/>)